

# Quality improvement project on Ob/Gyn ambulatory clinic HPV vaccination in a tertiary community hospital

## Abstract

**Background:** Genital human papillomavirus (HPV) is the most common sexually transmitted infection in the United States, with approximately half of new HPV infections occurring among persons aged 15–24 years. To improve HPV vaccination rate, a Quality Improvement (QI) Project was initiated in the OB/GYN ambulatory clinic and postpartum floor.

**Methods:** Data analysis was performed on the results of a Quality Improvement Project on HPV Vaccination for years 2011-14 at Lincoln Medical and Mental Health Center ambulatory OB/GYN clinic.

The following steps were implemented to improve the quality of care and increase rates of HPV vaccination:

- In-service training and meetings for OB/GYN staff members to discuss the importance of patient counseling on HPV vaccination, and associated issues and solutions.
- Enhancement of patient education on HPV vaccination by providing brochures and via use of wall panel and intra-hospital TV programs.
- Identification of patients eligible for HPV vaccination and follow-up to assure they receive all 3 doses of HPV vaccination.
- Implementation of standing postpartum orders for HPV vaccination for eligible patients and administration of one dose of HPV vaccine in postpartum unit.

**Results:** Data showed increased trend of vaccination from years 2011-14. For those quarters with a decreased number of patients that completed HPV vaccination series, there was a correspondent decrease in number of patients eligible for vaccine and/or an increase in number that refused vaccination.

**Conclusion:** Using the Quality Improvement Project in our hospital, we were able to increase the rate of HPV immunization rate among the young women and adolescent girls in our OB/GYN service.

**Keywords:** centers for disease control and prevention, condyloma acuminata, efficacy, efficacy of HPV vaccine, education, Gardasil, genital warts (condyloma acuminata), HPV, HPV QI, HPV vaccine, HPV vaccine efficacy, human papillomavirus, papillomavirus vaccines, quadrivalent HPV vaccine, quality improvement, vaccination

Volume 3 Issue 3 - 2015

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**Received:** October 21, 2015 | **Published:** December 3, 2015

## Introduction

Genital human papillomavirus (HPV) is the most common sexually transmitted infection in the United States. Two HPV vaccines are licensed in the United States for prevention of specific HPV types and HPV-associated outcomes.

- HPV-4 (Gardasil) for use in male and females aged 9–26 years for prevention of cervical cancer, cervical cancer precursors, vulvar and vaginal cancer precursors, and anogenital warts caused by HPV types 6, 11, 16, and 18 and
- HPV-2 (Cervarix) for use in females aged 9–25 years for prevention of cervical cancer and cervical cancer precursors caused by HPV types 16 and 18.<sup>1-5</sup>

As of January 2015, U.S. Food and Drug Administration (FDA) approved the third HPV Vaccine; Human Papillomavirus 9-valent Vaccine (Gardasil 9) for vaccination against cervical, vulvar, vaginal, and anal cancer caused by Human Papillomavirus (HPV) types 16, 18, 31, 33, 45, 52, 58 and Genital warts (condyloma acuminata) caused by HPV types 6 and 11.<sup>6</sup>

Improving HPV vaccination rate is an effective ways to promote the overall health of young women and adolescent boys and girls. Despite the counseling in our prenatal and Women's Health clinics and high efficacy of the human papillomavirus (HPV) vaccine,<sup>7,8</sup> many young mothers of our inner city population choose not to vaccinate. One of the main reasons is individual's psychosocial perceived barriers to HPV vaccine uptake (e.g., safety concerns, vaccine adverse effects, vaccine cost, other HPV-related beliefs and not being sexually active).<sup>7</sup>

To improve HPV vaccination rate, this Quality Improvement (QI) Project was initiated in the OB/GYN Ambulatory outpatient clinic and inpatient postpartum floor. We utilized our team of physicians, nursing and staffs with the goal of improvement of patients' educations and HPV vaccination awareness leading to increase vaccination rate among our patients. This is an ongoing evolving process that has been started in 2011 and still going. We tailored each steps of this QI project based on our quarterly results for more improvement on the next upcoming quarters.

## Methods

Analysis of collected Quarterly data on HPV Vaccination from Lincoln Medical and Mental Health Center, ambulatory OB/GYN clinic from years 2011 through 2014, while implementing the Quality Improvement (QI) Project for HPV vaccination.

In order to improve the quality of care and increase HPV vaccination among our patient, the following steps were implemented:

1. In-service training for OB/GYN clinicians, nursing and staffs on importance of patient education and counseling on HPV vaccination on a monthly basis as well as review of the HPV QI results from the previous months on the performance improvement (PI) meeting.
2. Enhancement of patient's educations on HPV vaccination in both women's outpatient clinic as well as postpartum floor and GYN inpatients, by providing brochures, use of wall panel and intra-hospital TV programs on importance of HPV vaccination and Gardasil. Information about vaccination (Taken from Centers for Disease Control and Prevention (CDC) handouts and other trusted resources) was also included as part of patient's discharge instructions
3. Setting the hospital computer system to ask a question about different type of vaccinations for each patient, mandating the clinicians to complete the vaccination part before moving to the next step of the patient evaluation in the patient's chart and therefore identifying those patients who are eligible for vaccination.
4. After identifying the eligible individuals (of 12 to 26 years of age) for HPV vaccination, we followed up on this targeted group to assure they receive the 2nd and third dose of HPV vaccination. Vaccination was offered through the prenatal, postpartum and GYN clinic as well as the postpartum inpatient and Gyn admissions. Vaccine was provided free of charge for the patient and repeat vaccination was performed on follow up visits. Reminder phone call for appointment was given to patients to improve patient follow up in clinic.
5. Implementation of standing orders as part of routine postpartum orders for HPV vaccination for eligible patients:
  - a. For those patient who did not receive the HPV vaccination prior to pregnancy, Administer first dose of HPV vaccine while patient is in post partum unit.
  - b. This would followed by appointments and reminder calls from OB/GYN Clinic for 2nd and 3rd doses of HPV vaccination
6. Formation of Quality improvement multidisciplinary Committee consist of administrative leadership personnel, physicians, nursing and staffs on HPV Vaccination with the review of quarterly performance improvement meeting to discuss the issues and solutions as well as for the evaluation of HPV vaccination results.

## Results

Table 1 shows HPV Vaccination Compliance and Vaccination Rate from years 2011-2014.

- A. **4th quarter 2012: October–December 2012:** 28 % Decrease in # of patients that completed HPV vaccination series - Less patients eligible or refused vaccination.
- B. **4th quarter 2013: October–December 2013:** 43% increase in # of patients that completed HPV vaccination series.
- C. **2nd Quarter of 2014: April–June 2014:** From month of April and June 2014, HPV Compliance rates increased. 23% increase in # of patients that completed HPV vaccination series as there were less eligible patients for the vaccine in the 2nd quarter of 2014 compared to 2013.

## Discussion

An estimated 14 million persons are newly infected with HPV each year; approximately half of new HPV infections occur among persons aged 15-24 years.<sup>1</sup> Although the majority of HPV infections are asymptomatic and resolve, persistent infections can cause disease, including cervical cancers.<sup>1-3</sup> No cure exists for HPV infection; treatments can be directed only at HPV-associated lesions (e.g., warts, precancerous lesions, and cancers). Annual costs of cervical cancer screening and treatment of HPV-associated health outcomes have been estimated at \$8 billion U.S. dollars in 2010.<sup>1</sup> Almost all cervical cancers and many vaginal, vulvar, anal, penile, and oropharyngeal cancers are attributable to persistent, oncogenic HPV infections.<sup>1</sup> HPV-associated cancers in males include some anal, penile, and oropharyngeal cancers caused primarily by HPV16.<sup>5</sup>

Published studies consistently indicate that HPV vaccination of girls<sup>1,2</sup> and boy<sup>8</sup> aged 12 years in the United States is cost-effective.<sup>1,2</sup> For those not vaccinated against HPV at the target age, catch-up vaccination is recommended up to age 26 years.

Centers for Disease Control and Prevention (CDC) recommend HPV vaccination for men as following<sup>9</sup>

- i. All boys at age 11 or 12 years.<sup>9,10</sup>
- ii. Older boys through age 21 years, if they did not get vaccinated when they were younger.<sup>9</sup>
- iii. Gay, bisexual, and other men who have sex with men through age 26 years, if they did not get vaccinated when they were younger.<sup>9</sup>
- iv. Men with HIV or weakened immune systems through age 26 years, if they did not get vaccinated when they were younger.<sup>9</sup>

Educational interventions and increase knowledge about vaccine awareness<sup>11</sup> as well as tailoring intervention materials to women and each individual barriers to HPV vaccination are potentially promising strategy for increasing HPV vaccination among young adult women.<sup>12,13</sup>

Obstetrician–gynecologists have the opportunity to intervene by:

- a) Educating mothers about the importance of vaccinating their children at the recommended age and catch up period.
- b) Educating those who are between 13-26 prior to the onset of sexual activity.

- c) While HPV vaccination in pregnancy is not recommended;<sup>2,14</sup>
- d) Lactating women can receive HPV vaccine and should be offered this intervention.<sup>2,14</sup>

Human papillomavirus (HPV) vaccination is a safe and effective primary prevention strategy for cervical cancer.<sup>8,12</sup> Increase awareness about susceptibility to HPV infection and the high efficacy of the vaccine, along with peer interventions to increase acceptability, are all important factors in increasing HPV vaccination rate.<sup>7</sup>

## Conclusion

HPV vaccination has the potential to decrease substantial health and economic burdens caused by HPV-associated diseases, including cancers. If health-care reform implementation expands adolescents' access to primary care and vaccination services, it could ultimately, reduce the substantial burden of HPV-associated diseases and cancers in the U.S. population.<sup>1,2,11</sup> Using the Quality Improvement Project in our hospital, we were able to increase the rate of HPV immunization rate among the young women and adolescent girls in our OB/GYN service.

## Future directions

Our goal is to continue our vaccination educations based on each individual's level of understanding and raise public awareness about HPV and therefore increase in health care service utilization and HPV vaccine acceptance for both male and female. Social media (including TV, radio, newspaper, Internet, advertisements), school, peer counseling and parental guidance should educate the children about benefits of HPV vaccination. In medical field, Multidisciplinary teams from pediatrics, adolescent medicine, Obstetrics and Gynecology, family medicine and internal medicine should address HPV vaccination to all their eligible patients. These tools should be promoted to reduce the cervical cancer burden on vulnerable populations.<sup>7</sup>

## Acknowledgments

None.

## Conflicts of interest

The authors declare there is no conflict of interests.

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